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Doing Too Much.—II.

WE spoke recently of the tendency to do too much as one of the errors in our treatment of country places, especially those of small size. Our former carelessness in regard to architectural beauty was succeeded by a period when we believed that it meant as much ornamentation as possible. This belief we are outgrowing. In architecture we are beginning to realize that the highest beauty most often means simplicity, and always means fitness, but in gardening we are still in the second period. We think too much of elaboration in our small grounds, and too little of appropriateness as regards their adaptation either to the house they surround or to the original character and natural possibilities of the site itself.

When, as is often the case in our more populous summer colonies, cottages and villas for summer residence exist in such numbers that they form actual streets, each house being surrounded by only a small piece of ground, and views of the adjacent country being cut off, then it is proper to treat these grounds as gardens. They may rightly be designed and planted in truly gardenesque ways, and filled as full of beautiful plants of all kinds as is consistent with good taste and the depth of the owner's purse. But even under these conditions it is too often thought that the purse must be deeply drawn upon to get an agreeable result, while good taste is constantly outraged by overcrowding, and also by the selection, for their rarity, or, at least, for their individual charms, of plants which do not combine into an harmonious whole.

Overcrowding is, indeed, an almost universal sin in our small grounds. Perhaps, when the house was built it stood in the midst of a bare expanse, unpleasantly naked in its own effect, and with its windows and piazzas unpleasantly open to the public eye; therefore, trees are set out in sufficient numbers to afford shade and protection quickly, vines and shrubs are started to clothe the crude foundations and partially screen the piazzas, and flowers are planted to enliven the general effect and furnish supplies for cutting for the house. At first it does not seem that too much had been done, but even if nothing further is done, in a few years, if climate and soil are not very unpropitious, unless some of the trees are cut out they will crowd one another to their common injury, exclude light and air from the dwelling, and utterly shut off the view of any world beyond the borders of the small property itself. Unthinned, the shrubs will grow into thickets, which no amount of pruning will keep in an attractive condition; they will lose their lower branches and they will not bloom as prolifically as they should. And, unless carefully checked and directed, the vines will so swathe the house as to conceal its architectural character entirely, prevent sunshine and breezes from refreshing its piazzas, and assist the trees to darken all parts of it.

This is the condition of many of the cottages of people who inhabit them only during the summer; and, unfortunately, this is the condition which seems just now to excite admiration most surely. The passer-by pronounces it picturesque and cozy, and so thinks the owner, grown accustomed to excessive luxuriance, to confusion of effect, and to the lack of fresh air and sunshine. The natural pride which every planter takes in the successful development of his nurslings is allowed to become an unnatural distaste to using the axe and the shears upon them. The overshaded cottage and the overcrowded place are becoming as typical of our summer resorts as were once the wholly naked house and the almost wholly neglected grounds. And when to this general liking for as much foliage as possible is added a special taste for brilliant flowers or for showy exotic plants, then excessive want of harmony is added to excessive luxuriance, and the result is still worse.

A really good effect can be obtained in places of this sort only when constant study is given to their development, and this study is more needed in taking care of a small place than in planting it. Errors in planting on a small scale may be retrieved if a careful eye is kept on the progress of the place, and they are soon detected; but the very best original scheme is surely and quickly injured if overcrowding is permitted to go on for any considerable period. And if thinning is then attempted, all the remaining trees and shrubs and vines will present, for a long time, an unattractive appearance, while many of them will be irretrievably ruined.

The owner should realize from the first just what it is that he wants of his plantations—how much shade and how much sunshine he desires for the house itself and for other parts of his little property; in what degree he wishes to be shut off from the street and from his neighbors; how much of his house, and just what portions of it, he would like to see garmented with vines, and just what portions he prefers to keep free from them, so that its best architectural points shall remain apparent and its solidity as a whole shall not seem to be impaired; in how great a measure he wishes his piazza screened by these vines or by the shrubs planted at its base, and in how great a measure left open to the breezes and the sun. When he understands what he wants, all his plantations should be carefully watched from year to year and encouraged or checked, in correspondence with his plan. And, of course, when he owns a particularly fine tree or a particularly attractive flowering shrub or group of shrubs, he should consider its individual claims as tenderly as he can, without detriment to the general effect of his place, and not allow it to be spoiled by intrusive neighbors less valuable than itself. In short, he should not fear to use axe or shears any more than he fears to use the implements of planting. He should remember that his grounds exist for him as truly as his house does. But too often he seems to think that he exists for them, and has no right to protest, no matter how overluxuriant may be the vegetation they produce. And, by virtue of this well-intentioned mistake, he deprives his place of that greatest of all artistic merits—simplicity.

MORE than fifty years ago the Commissioner of Patents was authorized to purchase and distribute—under a specific appropriation—seeds of new plants which could prob-

ably be grown with profit in this country. By a loose interpretation of this law this free-seed dispensation expanded until the mails were annually burdened with packages by the million, weighing in the aggregate hundreds of tons, and sufficient to plant something like a hundred thousand acres of flower and kitchen garden. Not only were seeds of the commonest vegetable and flowering plants sent out in this way, but in many cases worthless seeds were used which had been paid for at extravagant prices. Just before he resigned his position as Attorney-General, Mr. Olney delivered an opinion to the effect that the phrase "new and valuable seeds, rare and uncommon to the country," cannot be construed to mean the ordinary market varieties of Turnips and Cabbages, or of China Asters and Nasturtiums. Under this ruling the Secretary of Agriculture is prohibited from purchasing any seed which is not plainly included in the original intent of the law. Of course, the expenditure of this money by the Seed Division has been denounced year after year by every intelligent organ of public opinion in the country as a worse than useless extravagance, and if Mr. Olney's opinion is correct, it has been illegal also. In spite of the fact that the abolition of this Seed Bureau will save the country $200,000 a year, an effort will be made by certain Congressmen to reorganize it by special enactment and set it running again. What Congress should do is to prohibit entirely the purchase of seeds of any kind for general distribution by the Department of Agriculture. There is no danger that this country will suffer for any lack of plants, either for ornament or use. Private enterprise can be trusted to secure and disseminate seeds or bulbs, or roots or cuttings of every tree or shrub or herb which we do not now possess, and which promises to be of any horticultural or agricultural value.

The Collection of Funeral Wreaths and Offerings in the Museum of Egyptian Antiquities at Giseh.

ABOUT two miles from Cairo, over a dusty road, shaded by equally dusty and parched, but picturesque rows of that almost only Egyptian shade-tree, the Lebbek (Albizzia Lebbek), facing the Nile and surrounded by very indifferently kept, tropical, high-walled gardens, is the large suburban palace of the late Khedive, Ismail Pasha. In it is housed, since 1890, the enormous collection of Egyptian antiquities that for some thirty years or more has been known as the Boulaq Museum. It is a dreary building and eminently unfitted for the use to which it is now put. Anything more incongruous can scarcely be imagined than the very fantastic imitation-rococo decoration in the interior, and the endless rows of silent and stately gods and goddesses, kings and priests that gaze in stony wonder at the nondescript pink, blue, white and gilt stucco of the very worst period of Franco-Turkish ornamentation.

The special collection in question is very small, but is probably the oldest botanical one in the world, as the bulk of the specimens come from the coffins of the royal mummies found secreted in the side of the mountain of Deir-el-Bahari, in the necropolis of Thebes, in 1881. It consists of a few mounted and framed flowers on the walls, a glass case of funeral wreaths, two more containing small earthenware bowls filled with cereals and fruits, and some very ancient and desiccated-looking logs leaning against the walls. It has been arranged and classified by Dr. G. Schweinfurth, the eminent oriental botanist, and many of the specimens are more than thirty centuries old.

The most interesting of the specimens on the walls are those of the Water-lilies. They are very frail and brownish, but the hot, dry atmosphere of the rock-hewn tombs where they were found has preserved their shape and character to such a degree that they look scarcely more aged than many a plant of the same species collected and preserved within very recent years for herbarium purposes. The White Lotus, Nymphæa Lotus, is the best known of the Egyptian species, and is often represented on the monuments with all the details of the plant faithfully rendered; it is known to have been in Egypt from the time of the erection of the Great Pyramids. The flowers have been very frequently found in the tombs, either as parts of garlands or entirely decorating mummies, and it was in general use, especially during the Ramesside period, for all sorts of purposes. Immense bouquets and garlands of it were used for decoration on festal days. Women carried them in their hands or arranged them on their head-dresses, the stems coiled diadem-fashion, with the flowers falling over the forehead. The tuberous roots were used as food, even the seeds were eaten; its medical uses were known in the ancient Egyptian pharmacopœia, and what is interesting to us is that the Egyptian name of the flower, Soushin, meaning "Lily," has come down to us through various philological changes. Few of those who bear the name of Susan are aware of its meaning or of its remote antiquity. There are records of women of that name as far back as the Twelfth Dynasty, 2466, B. C., and even men in the time of the Pharoahs were known to have borne it. The White Lotus is still found occasionally in Egypt, in a few stagnant canals and in pools and ponds left after the inundation of the Nile; but it has vanished from the life of the people.

The Blue Lotus, Nymphæa cœrulea, exists also in the Giseh herbarium, and enters into the composition of a small garland consisting of Celery-branches, Apium graveolens, intermingled with the Lily-petals and those of a smaller Nymphæa that has not been identified with any species known in our time. It is less often found than the White Lotus, but occurs as garlands around the necks of painted personages in some very ancient tombs. It also enters into the composition of the decorations put on the mummy of the Great Ramses II. many years after his death, and is said still to exist in Egypt.

Papyrus, Cyperus Papyrus, is often found, usually the stems, with the radiating head, laid in the hands of the mummies. It is no longer seen wild in Egypt, though in Abyssinia, Nubia, Syria and Asia Minor it grows spontaneously and forms impenetrable thickets on the river-banks. Its many uses are too well known to enumerate here. The wreaths that covered the mummy of Ramses II., 1333, B. C., are long, slender garlands of Willow-leaves, doubled and sewed together with Date Palm fibre around a twisted cord of the same material, interspersed here and there with single petals of the Blue and of the White Lotus. The Willow, Salix Safsaf, is a low shrub still to be seen on the banks of the Nile, and its leaves are the basis of most of the funeral garlands that have come to light. It was the sacred tree of the classical Tentyra or Tentyris, where the Temple of Hathor, at Denderah, now stands, and one of the religious ceremonies of the time, performed by the king, was the erection of a Willow before the image of the goddess.

Other garlands are woven of the Willow and single petals of Alcea ficifolia, a Malvaceous plant, which is still cultivated in some old Arabic gardens; others have the Salix-leaves, with scattered here and there the little, round, fluffy balls of Acacia Nilotica, the Shant-tree of ancient writers, and the source of the gum arabic of commerce, an odorous shrub that to-day grows in profusion along the river, and in early spring fills the island of Philæ with its delicious fragrance. Other wreaths, again, are woven of a species of Mimusops, supposed to be the Persea of antiquity, the specific name of which is a matter of disagreement. The garlands taken from the mummy of King Ahmès I., 1700, B. C., were made of Willow, Acacia, Alcea and the yellow leguminous flowers of Sesbania Ægyptica, and in his coffin were found smaller ones constructed of the blue-purple flowers of Delphinium orientale, a Larkspur that after three thousand years still retains traces of its color. The latter plant is not known in the Egypt of to-day. Another interesting garland is that found in the coffin of the Princess Nesi-Khonsou, and is composed of the usual Willow and many Poppy-flowers, and faint markings of red color are

still on the somewhat shriveled petals. It is common now, especially near Alexandria, where it fills the grain-fields and covers the canal and railroad embankments with a profusion of brilliant scarlet, and is the type and ancestor of the gay Field Poppy so plentiful all over Europe. It is called by Boissier Papaver Rhœas, var. genuinum.

The coffin of King Amenophis, the builder of the Memnon statues, and dating from many years before that of Ramses, was decorated with similar wreaths, some of which still surround the uncovered mummy in the big hall where the royal mummies are preserved, and tends to show the remote date of the origin of the custom of decorating the dead with flowers.

Many interesting plant-remains were found in the coffin of a private personage named Quent, and among others the space between it and the lid was entirely filled with branches of the Sycamore-tree, Ficus Sycomorus, that still retained their leaves. The latter was a valuable and important tree and supplied some of the material for the mummy cases, many of which, after three thousand years, are still in a state of perfect preservation. It was used for furniture, and many statues carved in its enduring wood have come down to us from the early Dynasties, and it is still a common tree everywhere in the country and the largest of the shade-trees. The abundant small fruit is used by the lower classes and is hawked in the streets of Cairo. There is also a bowlful of the fruit of the Fig-tree proper, Ficus Carica, at Giseh, and mixed with it are some dates, all taken from funeral offerings. The Date-Palms, Phœnix dactylifera, are the most abundant, and ofttimes the only trees on the Nile, and its dicœcious character was known to the ancients, for hieroglyphic texts speak of it, and in his history Herodotus makes mention of the festival when the trees were artificially fertilized, though curiously enough they called the fertile one the Male Palm. The leaf-rhachis was used then, as it is now, for the manufacture of all sorts of useful utensils, chair-seats, bird-cages, mats, sun-shelters, etc.

The large nut of the Doum, Hyphæne Thebaica, has also been collected from the tombs. It is the Palm with broad, fan-shaped leaves that is seen everywhere in upper Egypt. The fellahs say that the fruit is edible when young, though when ripe it is so hard that it can only be split with a hatchet.

Of the cereals, Wheat, Triticum vulgare, is the most interesting of the exhibit, as well as the one that is most frequently found in large quantities. Almost any traveler can secure a little jar of it, genuine "antica," at the necropolis of Thebes, and during the excavations conducted by Monsieur Naville at the temple of Queen Hatasu, at Deir-el-Bahari, in 1893, it was lying in his office by the basketful. The ancient Egyptians, for the better preservation of the wheat, which was supposed to be deposited in the tomb for the nourishment of the soul of the deceased, were in the habit of varnishing the grains with some kind of resinous substance. Egyptian wheat, after a drying period of over three thousand years, has been sown by some credulous folk—without success, however.

A curious find were the bowlsful of a Lichen, Parmelia furfuracea, found with the royal mummies. It was noticed by the botanist Forskål more than a century ago in the markets of Cairo, and he wrote a lengthy description of how, mixed with flour, it caused fermentation. It comes from the Greek Archipelago, and under the name of Chèba is sold in the drug bazaar of Cairo to-day. Perchance the ancients used it for the same purpose, and, therefore, the reason of its frequent occurrence among their offerings.

To return to the Water-lilies, it is strange that the Sacred Lotus, the classical flower that Herodotus calls the Rose-like Lily of the Nile, Nelumbium speciosum, has not been found. It was very sacred and worshiped almost as a divinity, and it was forbidden to eat its fruit. It is represented on some monuments, though with such fantastic deviations from nature that it is scarcely recognizable. They are cultivated in Cairo and elsewhere in the Delta, in private gardens, where they thrive without any special care or cultivation being given them.

That they are easy plants to grow is demonstrated in this city, where, in most of the fountains, they are to be seen during the summer months, along with the Papyrus and many species of Nymphæas, and at the proper season a small pond on the west side of Central Park is filled with the great rose-colored flowers that stand proudly two or more feet above the water.

It would take too long to go through the entire list of plant-remains that have been brought together from various sources. Egypt is by no means entirely explored yet, and its early inhabitants having a very creditable way of writing everything they knew or owned on imperishable stone, and of preserving everything that would resist decay, there is no reason that knowledge of the greater portion of their botanical and pharmaceutical possessions may not yet come to light. Monsieur Victor Loret, in *La Flore Pharaonique* enumerates 202 species with their ancient as well as modern names, and Mr. Perry Newberry, of Kew Gardens, has already spent many months in Egypt identifying the vegetable remains found by Mr. Flinders-Petrie at Hawara, Dashour and in the Græco-Roman necropolis in the Fayoum.

New York. *Anna Murray Vail.*

Foreign Correspondence.

London Letter.

SOME notes on the most attractive herbaceous plants now flowering in the open air at Kew may be of interest to readers of GARDEN AND FOREST. A collection which comprises in round numbers 6,000 species of herbaceous and alpine plants capable of cultivation in the open air necessarily contains numerous plants which are worthy the attention of horticulturists, but which are not generally grown in gardens, but the middle of July, after a season of exceptional drought, is not, perhaps, the most favorable time to see them. I have, however, jotted down the names of some of the handsomest of the plants now in flower in the borders and rock-garden, and every one of these is well worthy of a place among select collections of garden-plants. The difference in stature and in size and color of flower between plants of the same kind grown in good soil and well watered and those grown in the natural soil of the place and watered now and then is most marked. Certainly all herbaceous plants require good cultivation, and, although they will grow and flower under starvation treatment, they are, as a rule, miserable caricatures of what liberal treatment will produce. Delphiniums, well treated here, are now eight feet high and magnificent; poorly treated, they are barely four feet high. This is equally true of most plants, even Poppies showing the same marked preference for rich soil. There are, however, two noteworthy exceptions in the Verbascums and single Hollyhocks, which are taller and handsomer on poor soil than on rich. I believe manure to be the principal cause of disease in the Hollyhock. Other plants which have done well in somewhat dry positions and where the soil is not rich are Lychnis Chalcedonica, three feet high, with crimson heads four inches across; Achillea ptarmica, the Pearl, three feet high; Geranium armenum and Spiræa Aruncus.

CAMPANULAS.—The best of these is Campanula persicifolia in all its forms, especially the large pure white variety called grandiflora. They have been in flower a month at least, and they are still beautiful. Being a perennial and quite hardy, this is a most useful plant for open-air gardening; it is equally useful when grown in pots in a cold frame to flower in spring in the conservatory. C. rapunculoides has stems four feet high crowded with rich purple-blue bells.

CHRYSANTHEMUMS of the Paris Daisy section are too well known to require more than passing notice. There is, however, a robust form of the yellow Marguerite, called Etoile d'Or major, the correct name of which is C. frutes-

cens, var. chrysaster, and it is a great improvement upon the older variety, the plant being much more robust and the heads fully two inches across. C. maximum is a most attractive summer bedding-plant.

Coreopsis or Calliopsis.—The best of this genus are two forms of Coreopsis tinctoria named atrosanguinea and bicolor. They grow about eighteen inches high, the former having rich maroon-crimson flowers, the latter deep yellow, with a large maroon centre. The Texan C. Drummondi is almost as ornamental, but its flowers are nearly all yellow and its leaves are less elegant.

Delphinium.—One of the most admired of all the species of this genus is the Siberian Delphinium grandiflorum, which grows to a height of eighteen inches or two feet, and has slender stems with feathery leaves and the richest gentian-blue flowers. It is said to be one of the parents of the fine border Delphiniums. It flowers freely the first year from seeds. All the varieties of D. Ajacis are worth growing, their height being from three to five feet and their flowers in loose large panicles. They are annuals, and are easily raised from seeds.

Eryngiums.—The best of these are Eryngium alpinum, with leafy stems a yard high and whorls of large involucral bracts of a rich steel-blue color; E. Oliverianum, equally handsome, and not unlike E. alpinum in color, and E. giganteum, which has milk-white bracts, and is one of the happiest in the ordinary border. These plants should be raised from seeds sown in pots and grown on in a frame the first year. There are numerous other species and varieties deserving of a place in gardens, but they are not in flower now.

Phacelia campanularia is one of the most beautiful of Californian annuals, and it is a good plant for dry situations. Here it has been greatly admired in beds on the lawn, where it is sown over bulbous Irises to furnish the beds in summer.

Brachycome iberidifolia, the Swan River Daisy, is a charming annual when sown in large patches near the front of the border, where it forms a tuft a yard through and a foot high of hair-like stems bearing bright blue daisy-like flowers an inch across.

Centaurea cynaroides is one of the best of the exotic Knap weeds, and, although a native of the Canary Islands, is hardy here. Its stems are two feet high, the leaves are deeply pinnatifid, a foot long, dark green, with a pale midrib, and the flower-heads are large and of a bright mauve color. If our native Corn-flower, C. Cyanus, is not generally grown in America, I can strongly recommend it as a suitable companion for the Sweet Sultan, C. moschata, both for the open border and in the greenhouse in spring.

Salvia Horminum, the purple Clary, is attractive on account of the rich purple-blue leaf-like bracts borne at the apex of the flower-spike. It is of the easiest culture and should be in every herbaceous border. Salvia virgata is ornamental in the color of its calyces, which clothe the long erect spikes and are a bright red-purple. In the twilight this plant has a rich glow. It grows to a height of four feet and has small blue flowers.

Malva.—All the Mallows are ornamental, but there is a specially handsome one in flower here now named Malva Alcea, var. fastigiata. It is five feet high, well branched, forming a broad bush, crowded with bright mauve-pink flowers two inches across. It is quite hardy and perennial.

Nigella Damascena, the Fennel Flower, is a strikingly handsome annual, with stems, leaves, flowers and fruits which suggest spider's webs in their elegance and arrangement. The flowers are star-shaped, nearly two inches across, pale blue, and the Poppy-like fruits are crowned with a whorl of horns suggestive of long spiders' legs.

Lynchnis Cœli-rosea is a beautiful little annual Campion, a foot high, with Linum-like pale purple flowers, and the variety elegans has flowers of a rich, glowing crimson color. The latter is an exceptionally fine thing for the border.

Ononis, or Rest Harrow, is common in some parts of England, but some of the species are worth a place in the garden; for instance, O. rotundifolia and O. repens, as they form compact little bushes and flower freely during the early part of summer.

Centranthus ruber and C. macrosiphon, two of the best of the Valerians, are beautiful in the garden and magnificent on chalky soil. This year they have done well, the heads of flowers being large and bright in color. In Phœnix Park, Dublin, C. ruber has taken almost entire possession of a large rock-garden, and when in flower it is like a cloud of bright red. Along the railways running through the chalk downs in the south of England, it is also very abundant, and when in flower in summer it astonishes travelers unacquainted with its beauty.

I might also include such plants as Helenium pumilum, Iberis umbellata Empress and carnea, the stately Bocconia cordata and Lathyrus rotundifolius, the early Dahlias and summer-flowering Chrysanthemums, which contribute largely to the charm of our gardens in July. Many of these are old acquaintances, but they are often overlooked even by experienced horticulturists, and a reminder of them is often welcome.

London. *W. Watson.*

Entomological.

The White-marked Tussock Moth, Orgyia leucostigma, in Western New York.

NUMEROUS complaints concerning the depredations of this insect in Apple-orchards have recently come from fruit-growers in the western part of the state, especially from Yates and Ontario counties. One fruit-grower in this vicinity reports that twenty-five per cent. of his apple crop has been ruined this year by this insect. The injury is done by the caterpillars alone, which feed not only upon the foliage but on the young apples as well. They gnaw into the sides of the apples, thus causing them to become withered and deformed.

This destructive caterpillar is very striking in appearance. It is quite slender and covered with hairs of various lengths and colors. The prevailing color is bright yellow. The head and two tubercle-like projections on the back are coral-red. The four tufts of hair on the back are white. The two long plumes in front and the one at the posterior extremity are black. A broad black stripe runs the full length of the back, and on each side is a broader dark brown or black one. Along the sides, arranged in two rows, are numerous yellow tubercles, from which radiate pale yellow hairs.

The adult insect is a moth. The female is wingless, light gray in color, and if examined soon after she emerges from her cocoon will be found greatly distended with eggs. The males are provided with four dark brown wings, marked with a few dark wavy lines and a white spot on the inner angle of each anterior wing. Not being able to fly, the female clings to the outside of her cocoon, upon which she deposits her eggs, fastening them in place by a gelatinous frothy mass, which soon becomes hard and brittle. Usually one or two dead leaves will be found sticking to the mass. According to Mr. Saunders, a single female will deposit from 300 to 500 eggs in one of these masses.

It is in this state that the insect passes the winter, the eggs lying dormant until about the middle of May or first of June, when the young caterpillars are hatched. They quickly spread to various parts of the tree, feeding voraciously on the under sides of the leaves, and, as above noted, frequently upon the young apples as well. This brood completes its transformation about the first of August, and the second brood before the cold winter weather sets in.

When the caterpillars are established in an orchard, jarring the trees is recommended. Mr. C. K. Scoon, of Geneva, New York, who found them abundant in his Plum-orchard last year, kept them in check by frequently jarring the trees by a succession of light taps. The caterpillars at first hang suspended by a silk thread, but the repeated

jars cause them to fall to the ground; or, better yet, a curculio cart may be placed in position where they could be easily captured and killed. In case the curculio carts are not to be had, any large sheet spread on the ground under the tree will answer the purpose.

During the winter a very careful search should be made for the egg masses, which, as above noted, will be found attached to the empty cocoons which were formerly inhabited by the females. The eggs may be destroyed by crushing.

Spraying with the arsenites is also recommended, although the grower referred to as losing a considerable portion of his apple crop says that he sprayed his orchard three times with Paris green, but apparently to no effect. This failure may have been due to a lack of lime in the mixture, as an excess of lime has a tendency to make the poison remain on the leaves. The spraying should be done very thoroughly, care being taken to drench the under surface of every leaf. The caterpillars are said to be more susceptible to the poison when young.

Fig. 43.—Larva of the White-marked Tussock Moth.—See page 314.

According to Dr. Lintner, this insect is widely distributed in the United States, being found both north and south as far west as the Rocky Mountains. It has a large variety of food-plants, but, according to Mr. Saunders, prefers the Apple. It is known to frequently occur on the Plum, and has been found upon the Pear. Professor Beach, of the New York Agricultural Experiment Station, tells me that he has found it upon the Apricot. In some sections of the state it is very destructive to shade-trees, particularly the Elm and Maple.

The accompanying illustration represents a caterpillar feeding upon the under surface of an Apple-leaf. An injured fruit is represented on the left.

Jamaica, N. Y. *Victor H. Lowe.*

[This is the insect whose larvæ have been so destructive of the foliage of Lindens and other trees on the Common and in the streets of Boston and in other eastern cities. In our last week's issue some of the methods used to keep it in check in New York were given.—Ed.]

New or Little-known Plants.

Kalmia latifolia, var. myrtifolia.

THIS form of the Mountain Laurel has been an inhabitant of English gardens for many years, although it has escaped the notice of writers on the American flora, and we find no allusion to it in any of the numerous works on the botany of North America. The variety was mentioned, however, by Rand in his book on the Rhododendron, published in Boston in 1871, and in the *Revue Horticole* for 1883 André describes and figures it on page 10.

A plant of this Kalmia obtained from an English nursery has inhabited the Arnold Arboretum for many years, but until this season we have never known it except in gardens. From Princeton, Massachusetts, however, where he has found three individuals in localities remote from one another, Mr. Thomas B. Allen, of Boston, sends us specimens which are identical with the cultivated plant, and show that this is a natural variety and not a nursery seedling.

Kalmia latifolia, var. myrtifolia (see figure 44, on page 317), is a very compact, much-branched, leafy shrub with slender contorted branches, and when fully grown is not more than three feet high and broad. The flowers do not differ from those of the ordinary Kalmia in size, color or marking, but the leaves are not much more than an inch long and a third of an inch wide.

This pretty dwarf is an excellent plant for situations where the common Laurel would occupy too much space, or for the margins of masses of larger plants. It must be propagated by grafting or layering, as it is not probable that its seeds would reproduce its small leaves and compact habit.

Plant Notes.

Spiræa Anthony Waterer.—This is a seedling of that variety of Spiræa Japonica which is known in gardens as S. Bumalda and which is distinguished by its dwarf, compact habit, its persistent flowering and bright red flowers. S. Anthony Waterer originated in the Knaphill Nurseries, at Woking, in England, a few years ago, and only differs from its parent in the deeper, brighter and more intense color of the flowers. As it begins to flower freely when only a few inches high and continues to produce its large flat corymbs from July until frost appears, this shrub promises to be a capital addition to the rather short list of autumn-flowering hardy shrubs. It has flowered for the first time this year in the United States in a few gardens to which Mr. Waterer has sent it for trial. A beautifully colored plate of S. Anthony Waterer was published in *The Garden* last year. It has received a first-class certificate from the Royal Horticultural Society and has been described by our London correspondent in this journal (see vii., 34).

Ligustrum ovalifolium.—Although this plant is usually sold by nurserymen under the name of the California Privet, it is an Asiatic species which has become very common in this country. It is not a graceful plant in habit, like Ligustrum Ibota, but is stiff and whippy in growth. It has, however, the beauty that comes from rude health, and its erect branches are closely covered with glossy foliage, which often remains on the plants until midwinter. It is planted more generally in the small parks of this city than any other shrub, and its use is justified by its ability to endure drought, smoke and dust and other hardships which generally make shrubs unhappy in large cities. This year the plants here have been for some reason unusually floriferous, and in some of the squares and churchyards specimens ten or twelve feet high, covered with large clusters of white flowers, with a background of glossy leaves, have been very effective. Where this Privet can be trusted to endure the winters, it makes hedges which can be shorn with the greatest precision, and which, nevertheless, will cover themselves for weeks with feathery flowers. A photograph of such a hedge in one of the southern states was recently sent to this office, and makes a striking picture.

Clematis coccinea.—This interesting plant, which was introduced into cultivation more than twenty-five years ago, has proved able to survive the climate of New England, although it is a native of Texas and the south-west. It grows to the height of eight or ten feet in this latitude, and is a smooth, slender vine with somewhat leathery trifoliate leaves, and solitary flowers borne on slender, but erect, peduncles six or eight inches in length, and sometimes even longer. The flowers, which are about an inch long, may be called bell-shaped, although they are somewhat contracted at the point where the sepals begin to spread, so that their diameter is smaller here than it is nearer the base, and the sepals are so thick and fleshy that the mouth is small. Their color on the outside is a light scarlet or

coral, and a pale yellow within. The foliage is more thin and open than that of Clematis crispa, so that the plant is not as useful as some other species where a thick screen is desired. But this peculiarity of habit makes it specially useful for planting among shrubs, as it climbs through and over them without covering them up and smothering them. Our common C. Virginiana never looks so well as when it garlands and festoons wayside shrubbery, but C. coccinea has quite a different effect in such a situation, as the long stems hold the bright flowers well out from the foliage of the bushes among whose branches it rambles. We know a plant of this Clematis which for at least ten years has been growing among some Viburnums, and the group is brightened by its flowers from early July until after hard frosts, for it is one of the striking merits of this plant that, while it bears flowers somewhat sparsely, it produces them continuously throughout the season.

Curmeria Wallisii.—This is a very compact Aroid with ornamental leaves, and as a stove ornamental plant can hardly be excelled for neatness of habit and beauty of foliage. The broadly ovate-lanceolate leaves are of a deep velvety green, with silvery gray and yellow blotches parallel with the secondary veins. The spathe is quite inconspicuous, being of a yellowish white color, shorter than the spreading leaves. The plant grows to a height of eight or ten inches, forming a mass of foliage from underground stems. It requires heat and moisture for its full development. It grows well in a mixture of peat, sphagnum-moss and broken pieces of cow-manure, preferably in a close atmosphere. The propagation by means of division or by pieces of the short fleshy rhizome is slow, but easy. The plant, although too tender for general use, makes a fine object for table decoration.

Cultural Department.

Hardy Perennials.

In the front row of the mixed border, and also in the rock-garden here, are large patches of Sedum stoloniferum thickly covered with pink blossoms. This is an exceptionally good Sedum and makes a bright display at this time. It is a prostrate plant, and the part of the stem that creeps along on the ground is without leaves, and roots at almost every node. The upright stem is about six inches high, has opposite spathulate leaves, which are coarsely toothed above the middle, and they are about one inch and a half long. The pretty pink flowers are three-fourths of an inch in diameter and are borne in terminal cymes, which measure three inches across. It is a native of the Caucasus, and is perfectly hardy here without any sort of protection whatever. A good position for this Sedum is a sunny place in the rock-garden or the front row of the mixed herbaceous border. It is not particular about soil, but the most vigorous plants here, and those that produce the most flowers, are in a light, sandy soil, where they get plenty of sunlight all day. Another point in its favor is that it readily endures long periods of dry weather. The plants are easily increased. Every small piece has plenty of roots and will soon grow into a large specimen. This species has had several specific names and is figured in the *Botanical Magazine* under the name S. spurium.

Another good Stonecrop in bloom now is Sedum Kamtschaticum, a prostrate plant with stems six or eight inches long, and oblong-obovate deep green leaves. The yellow flowers, which are three-fourths of an inch across, are in terminal cymes and are plentiful. It is quite hardy and grows well in any ordinary garden soil, but, like S. stoloniferum, it does best in a sunny position.

The Japanese Stonecrop, Sedum Maximowiczii, is an erect species and a good herbaceous plant. It is about fifteen inches high and its stems are terminated with large spreading cymes of yellow flowers, which are produced abundantly either in sun or shade.

A small bed of Campanula pusilla alba attracts special attention at this time. The dark green leaves of this handsome dwarf Harebell make a thick carpet, and from it rise slender stems four or five inches high, with pendulous, pure white, bell-shaped flowers, which are borne in goodly numbers and make a fine contrast against the foliage. It is a useful plant for the rock-garden when in a slightly shaded position and not too dry. It increases readily, either by division or when grown from seed.

A few days ago, at the Shady Hill Nursery, Bedford, Massachusetts, I saw a large bed of Campanula Carpathica. As is well known, this Harebell produces more or less flowers during the entire summer. The bed, completely covered with flowers, suggested the advisability of using this as a bedding plant. Large plants in the borders are flowering profusely. The flowers are large, cup-shaped, and are borne on stems ten inches high. It is one of our best border plants, growing well in a light rich soil, away from the shade of trees. Seeds are produced in great abundance, and a stock of seedlings can readily be raised. Several good varieties of this species have been distinguished; some of them have pale blue flowers, and one has pure white ones. As the varieties do not always come true from seed they should be increased, either by division of the roots or from cuttings.

A large bed of Platycodon grandiflorum is especially attractive at this time. It is sometimes named Campanula grandiflora, and was figured under this name in the *Botanical Magazine*. It has beautiful, large, dark blue flowers, and some of the visitors to the garden compare their color to that of Clematis Jackmanni. We find this one of the easiest hardy perennials to grow. It requires no protection in winter, not even a covering of leaves. In vol. vi., p. 346, of Garden and Forest, Mr. Watson calls attention to P. grandiflorum, and says it is of questionable hardiness, and if the weather is severe in winter it perishes at Kew. This must be from some other cause than its inability to endure cold, because plants that are less than one year old can stand zero weather without protection here. Platycodons produce seeds very abundantly, and from these young plants are readily raised. Plants that were grown from seed sown last March are blooming now and have good-sized flowers, considering that the stems are only six inches high. In raising plants from seed one gets a number of different forms. Some come with semi-double flowers, while others are a whitish color, and many of them are of different shades of blue. The typical color is dark blue. P. grandiflorum is an old plant and was introduced in 1782. It has thick, long, fleshy roots, and full-grown plants carry six or more stems, which vary in height, some being a yard high. The tallest are better for being staked. The foliage is dark green. The flowers are from two to three inches across, and are produced in clusters at the ends of the branches. A deep rich soil and a position where they will not get too dry in summer seems to suit the Platycodons in our garden.

Large plants of Cimicifuga racemosa, or, as it is sometimes called, Black Snakeroot, are conspicuous with their long, feathery racemes of white blossoms. The variety dissecta is also in flower, but the only difference between the two is in the leaves. The leaves of the variety are more deeply cut than they are in the type.

Harvard Botanic Garden. *R. Cameron.*

Some July Flowers.

Two-spathed flowers of the Spotted Calla are very common, but last week I found two examples of abnormal growth which I have never seen or heard of before. The stems in these cases, instead of being solid, were like tubes not grown together all round, but with two edges folded in from the spathe to the ground, as though the stalk had been flat, about an inch broad originally, and then the edges folded inward, one lapping a little over the other; the inside of this imperfect tube being white, just like the spathe itself. One of the two specimens had two spathes, but, as in other "double" Callas, only one spadix.

Galtonia princeps is now in bloom; it is smaller in all its parts than G. candicans, and its flowers are greenish white. On the whole, it is hardly worth growing by those who care only for conspicuous display, but it has a distinctness about it which will secure for it a place in my garden for some time at least. Its chief deviation from the pattern of G. candicans is that its flowers are produced in a head or umbel, and not in the form of a spike. According to the *Genera Plantarum*, there are but two species of Galtonia, but there is a third, G. clavata, a green-flowered species, which is figured in the *Botanical Magazine*, t. 6885.

I take great pleasure in forcing Galtonia candicans; a bulb planted in a five-inch pot in December will flower finely in March, and will attain as stately a growth as those grown out-of-doors. It is somewhat singular that bulbs taken from the ground in October, and started after only two months' rest, will bloom as early as those which were forced last season and dried off in May.

Littonia modesta, which is commonly treated as a green-

house flower, does perfectly well if planted in the garden in May or June. It makes a stocky, sturdy growth, with little inclination to climb, and, to the best of my belief, produces more of its beautiful vitelline-colored bells than when in a greenhouse. As the growth is shorter, the flowers are closer together when planted out, and the plant is more effective. The flowers are by no means the only beauty of Littonia; the foliage is dark green and very glossy, every leaf tipped with a tendril, and the seed-pods, which are formed by every flower, are as smooth and polished and green as can be imagined. They retain their attractive appearance perfectly until the seeds are ripe, and then split open lengthwise, displaying the full rows of brilliant orange seeds, about as large as those of Sweet Peas. I have raised the so-called L. Keiti from seeds several times, but it appears identical with L. modesta. A new species of Littonia has lately been discovered in Arabia, L. obscura. The nearly allied Gloriosa has once or twice done well with the same treatment, but it cannot be depended upon out-of-doors in this latitude. The tubers of both are subject to decay if kept from the air during the winter.

Among my illustrious unknown is a bulb which came to me from Africa some years ago. As long as I grew it in a pot it made comparatively few and small leaves, and I called it Drimiopsis Kirkii, strongly hoping that it was that beautiful species. Last year I grew it in the garden, and it put out its thick, fleshy, pointed leaves to the length of a foot. They displayed the same beautiful dappling of green and olive that they had shown in the pot, and in August threw up a flower-spike ten inches high, thickly set with small purple bells. D. Kirkii has white flowers, and my plant is, therefore, something else; I suppose one of the south African Scillas of the section Ledebouria. It is not one of those figured in the *Refugium Botanicum*, nor can I positively identify it as any of those described by Mr. Baker in the *Journal of the Linnæan Society*. It is now in bud again, and I shall hope to make sure of its name.

Alströmerias are very satisfactory garden-plants as far as their beauty goes, but the names they go under are frequently not their own. A. venusta, so-called, is a very fine species with flowers as large and as bright as those of the Canna Florence Vaughan and as bright yellow, but when I tried to make sure of its name I found that there is no such species as venusta. There is a venustula, which Mr. Baker describes as having flower-stems two or three inches high. A. Chilensis figures in catalogues, but apparently it should be chiloensis. The kind sent me as A. aurea is really that form of A. hæmantha, figured as pulchella in the *Botanical Magazine*, t. 2354. The A. aurantiaca of gardens does not correspond with Baker's description.

Canton, Mass. *W. E. Endicott.*

The Gladiolus.

THE Gladiolus species are often interesting for a certain quaintness of flower and odd coloring, but it cannot be said that they are generally attractive plants. Many of the Asiatic kinds flower very early, and have long since ripened seed and foliage, and are reliably hardy here if protected from moisture in summer. They start into growth during the winter at every favorable opportunity. These are mostly of the G. segetum type, a species not at all attractive, the coloring being a purplish red or magenta. I have numerous forms of this type, varying somewhat in size, habit and markings, and under numerous names.

Except the quaintly colored Gladiolus Byzantinus, none of the European and Asiatic species seem to me worth garden-room except in collections. The case is different with the African kinds, for among these we have a number of distinct kinds, though generally of quiet coloring. The well-known G. Saundersii may, perhaps, be rated as the most attractive of these, its graceful habit and fine flowers being valued in the best gardens. Next to this in interest and beauty is G. oppositiflorus, the long-lost species which was supposed by Herbert to be one of the parents of the modern Gandavensis hybrids. This is one of the most vigorous of the family, with leaves five feet or more tall and flowering spikes with two or three branches. The well-opened flowers are rose-colored and white. This is

Fig. 44.—Kalmia latifolia, var. myrtifolia.—See page 315.

a great seed-bearing plant, and will soon be more available. G. aurantiacus, G. Leichtlinii and G. Crucutus have individually pretty flowers, but require careful cultivation to show their best form. G. dracocephalus luteus is a more pronounced yellow than the old type, but is more vigorous than beautiful in flower. It is rather a plant for the hybridist. G. sulphureus has flowers of a greenish yellow tint, and these are not as pretty as those of the form of G. tristis, which is often sold by plantsmen as G. sulphureus. G. platyphyllus has flowered here, but it is only a collector's plant. G. Eckloni and G. Papilio-auratus have shown no flowers during their two seasons' growth in my garden, and under ordinary conditions appear to be of only moderate vigor and height. G. purpureo-auratus has been so much overshadowed by Monsieur Lemoine's hybrids that probably only a few growers still retain this odd, hooded flower species. There are numerous other African species among which there are possibly attractive things. My collection of other sorts has mostly perished from hardships before flowering.

Elizabeth, N. J. *J. N. Gerard.*

Notes on Onions.

ONIONS may be grown by three different methods—by sowing the seeds in the open ground in spring, by planting sets, or by starting the seeds under glass and afterward transplanting the seedlings out-of-doors. The first two ways are more commonly practiced, but the third is undoubtedly more profitable, although entailing more trouble and labor. This has been called the new Onion-culture, but the method is by no means new. It has been practiced in Great Britain for a number of years for the production, principally, of exhibition specimens. Grown under any circumstances, however, Onions are far more reliable as a crop on this side of the Atlantic than in England, where the Onion maggot is such a persistent and destructive enemy. We grow Onions here under all three methods, and each has its advantages. Those sown in spring are used in a green state; the sets which mature early we depend on for general summer use, while the others are kept for fall and winter. The first two methods are so generally known that cultural directions here would probably be of little service, but a description of the third method may be useful to some who have not tried it. We sow the seeds thinly in flats early in March in ordinary potting-soil, and place them in a greenhouse with a night temperature of fifty-five to sixty degrees. We keep them only moderately moist until they are well started, when plenty of water is given. In April they are removed to cold frames and gradually hardened off, and in May they are planted in the open ground. Sowing in flats is most convenient where only a limited supply is needed, but if grown on a large scale it is better to sow them in a hot-bed, from which they can be transplanted quite as conveniently. Hardening off must in no case be neglected. The ground must be well tilled and liberally manured. The young plants should be set in rows one foot apart and eight inches allowed between the plants. An impression should be made just large enough to insert the roots; the small bulbs should not be covered. When the roots have a good hold of the soil, which will be in about a week after planting, it is well to go along with a foot on each side of the line and tread the soil firmly, choosing a dry day, when the surface of the soil will not be cloggy. All that will be required after this is to keep the surface well stirred with the hoe, so as to suppress the weeds and help to retain the moisture in the ground. By the measurements of a sample grown by each of the three methods the following results are shown: Those sown in the open ground now average seven inches in circumference, and may swell just a little yet; the sets average eight inches, and are done swelling; those sown inside and transplanted average ten and a half inches, and look as if they would grow quite a little more. It is useless to grow many varieties by this latter method. Prizetaker and Yellow Globe Danvers are two that are most reliable, and they are also excellent keepers.

Tarrytown, N. Y. *William Scott.*

Peas.—Bliss's Abundance and Stratagem have proved two good varieties for summer use. These are wrinkled varieties of the highest table quality. As compared with the Champion of England they have a longer season of bearing and are less liable to mildew, a disease most ruinous to the Pea crop at this season, and as they are more dwarf they require less support. We sow Peas every week throughout the season, and if the weather continues as favorable as it has been we shall have a continuous succession until frost. Peas, as a summer crop, succeed best on a moist subsoil. Drought quickly shortens their growth, when they become an easy prey to mildew. We always plant deeper in summer than in spring, puddle the seed in and leave a depression for later waterings. Our last sowing will be made early in August. American Wonder sown on the 10th of August have matured. Only early varieties should be selected for late sowings, and Kentish Invicta has proved one of the best round-seeded kinds here. I made an examination of all my pea seeds before planting this spring and marked the quality on the outside of the seed bag. So far I find the varieties most free from defects, principally in the integument, were the healthiest growers and had the fewest misshapen pods—Admiral, Horsford's Market Garden, Paragon, Nott's Excelsior, American Wonder, Bliss's Abundance and Stratagem and the Chelsea were all well formed and developed. Champion of England (though not usually so), Telephone, Heroine and Shropshire Hero were poor.

Strawberries.—The only varieties not injured here by late spring frosts were Bubach No. 5 (early) and Timbrell (late). Sharpless and Michel's Early were completely blasted. Haverland and Parker Earle bore less than half a crop. Our Marshalls were planted late last autumn; the crop was poor, but we do not consider that we put it to a fair test as to hardiness. Perhaps some of your readers who have tested it fully would give its merits in this respect. Our best Strawberries have always been from new beds, planted the previous August. If our plants have looked thrifty we have carried them over for another season, but have generally regretted doing so. Where runners are plentiful, plants, three in a hill, and from two to two and a half feet apart, will give a good crop of excellent berries. If a large quantity of medium-sized berries is wanted, it is probably better to make plantings in rows three feet apart, from held-over plants, in spring-time, and allow these to make matted beds for next season's bearing. This plan is followed largely by market-growers. In preparing our ground we dig in a liberal supply of barnyard-manure and air-slaked lime. After this, Bowker's special Strawberry fertilizer is put on at the rate of about half a ton to the acre and lightly pricked in with forks. If the ground is dry we give it a good soaking the day before we plant and use boards in preference to walking on the sodden ground.

Wellesley, Mass. *T. D. Hatfield.*

Correspondence.

Plant breeding.

To the Editor of Garden and Forest:

Sir,—Professor Goff's plea for greater attention to plant-breeding at the experiment stations (page 292) represents a general attitude of mind toward the question of the origination of varieties of plants. Inasmuch as he cites me as one who has introduced a variety which has been dignified with a name, I may be allowed, perhaps, to express my own convictions upon the subject. I cannot agree that the origination of varieties, as the phrase is ordinarily understood, should be a leading thought with the scientific experimenters. This conviction proceeds from the fact that man does not have it in his power to summarily produce a new variety with any degree of certainty. The varieties which appear year by year are what we term chance productions, and they must always be so to a very large extent. The term plant-breeding is borrowed from the animal industry, and persons generally assume that because there is something like scientific exactness in the breeding of animals, there ought to be a similar exactness in dealing with plants. But there is and can be no definite plant-breeding in the sense in which there is animal-breeding. The analogy is only superficial. A full statement of the fundamental dissimilarity between animals and plants, as I understand it, will be given in a small work which I am now sending to the press.

The true method of improving the vegetable kingdom is that pursued by nature—the slow unfolding of one form into another, the carrying forward of the whole body of cultivated forms of any species. There are, probably, few varieties of plants which are habitually grown from seeds which retain their original forms more than a decade. Through the influence of selection and cultivation, the progeny constantly departs from the parent type, although we fancy that we still have the same variety because we retain the same name for all the descendants. The Ignotum Tomato, which Professor Goff is kind enough to mention, was introduced by me in 1889; but the form which I introduced is probably nowhere in cultivation at the present time; it has passed out by variation into poorer and probably into better forms. Now, the person who centres his attention upon the mere production of new varieties,

is likely to forget the importance of the underlying principles and forces which are capable of uplifting the vegetable kingdom. We need a general uplift more than an occasional spasm. We must make more of the varieties which we have, and by doing so we push forward the progeny year by year in a gradual and enduring evolution. We may not recognize the progress from year to year, and may not be able to give varietal names as freely as we should like to, but the grand and final result is to be attained thereby. I look upon new varieties as so many new starting-points for still further development, not as final or permanent things in themselves.

The fact is, that our eyes are dazzled by the reports of creations in plants as they are by new and startling inventions. But one should be suspicious of the genesis of varieties which are said to have been produced outright by any foresight of the operator. Time will discover the merits of all pretensions; and it will forever enforce the undying principle that the amelioration of the vegetable kingdom is a slow unfolding of the new out of the old, through the simple and quiet agencies which man employs in cultivation and selection.

Cornell University. *L. H. Bailey.*

Rhododendrons in a Hard Winter.

To the Editor of GARDEN AND FOREST:

Sir,—The excellent article from Mr. H. H. Hunnewell, on Rhododendrons, in a recent number of GARDEN AND FOREST, adds testimony from valuable experience on the important question regarding failure through supposed lack of hardiness of these beautiful plants.

There would appear to have been already sufficient experience to demonstrate the fact, which many have heretofore considered a theory, that drought during the summer has as much, or more, to do with the loss of Rhododendrons and other evergreen plants as the cold in winter.

The Rhododendrons planted at the Washington Bridge, Amsterdam Avenue, in this city, are a good illustration on this point. In those plantations, although in a most exposed situation and without any protection during the past winter, and notwithstanding the severe drying weather early this spring, there is hardly a single plant that does not now appear in perfect form, health and vigor.

These plants, I am informed, were supplied with abundant moisture all last season, although not enough to force an abnormal growth. Had the plants been subject to excessive drought last summer or autumn the loss would undoubtedly have been as severe as in the parks here, in Brooklyn and elsewhere, as already referred to in GARDEN AND FOREST.

The more we learn to appreciate the simple natural requirements of all hardy plants the better the results that will invariably follow.

New York. *Fred. W. Kelsey.*

Recent Publications.

Forest Management.—II.

A Manual of Forestry, by W. Schlich. iii. *Forest Management.* London: Bradbury, Agnew & Co. 1895.

The second part of Dr. Schlich's book deals with the financial calculations required in the management of forests so as to determine the best methods of management in view of the return in money. The formulæ with which this part of the work is necessarily filled are so frequently interspersed with explanations in words that the reader who does not care to go into any mathematical study of the subject may still find a great deal to interest and instruct him, but the discrepancy which has already been noted between the economic situation in the United States and in Europe demands a considerable degree of latitude in the application of principles. For example, on page 153 it is said that the selling value of the forest is of subordinate importance. Nothing can be truer than this remark when applied to European conditions. With us it is otherwise. In the United States the value of a piece of property to its owner is either its selling value or its productive value. The first of these is the more important. In many cases it is the only value which is of real moment, the cost value being useful only for comparison. Even where the owner has no intention of selling, he usually estimates the value of his land at what it will bring. In general language the selling value is meant whenever we speak of what a piece of land or other property is worth. Only the special circumstances which give one man an advantage over others in working a particular piece of forest give the productive value any interest as against the selling value of the property. The basis of estimate, except for very small or otherwise unmerchantable holdings, is uniformly the selling value. Of this the productive value is often a component factor.

It should be carefully noted that the value of Dr. Schlich's book for use in this country loses but very little, at least in one direction, by differences such as that just referred to. In all great fundamentals the principles of forestry are essentially the same everywhere. The modifications which are required usually depend on temporary conditions, and will tend eventually to disappear. They are in the nature of exceptions, and should not be understood to invalidate the rules; at the same time they are often of vital moment where they apply, and they must not be overlooked.

The use of the discussion of principles in exhibiting the nature of the subject dealt with is very well illustrated in this book, although many of the calculations, operations and methods of work described are as yet inapplicable to this country. Still they all serve to point out the real nature of the forest. On page 200, for example, a discussion of the various kinds of rotation begins. Some of them have little or no practical interest in this country at present. Nevertheless, the chapter is one of the most instructive in the whole book because it reveals to the reader in a striking way some of the fundamental characters of the forest. The same remark applies to the discussion of the normal age classes (chapter iii., part II.) and to many other subjects.

The question of vocabulary which is referred to in the first part of this review is brought up again by Dr. Schlich's use of the term "wood" as indicating a part of a forest arbitrarily separated from the rest for the purposes of management—a distinction which it would be extremely difficult to reconcile with the habitual meaning of the word in this country, where it is generally made to refer to a comparatively small area of woodland surrounded by clearings, or otherwise delimited by natural boundaries. Another instance of the use of technical expressions with which we could hardly agree is afforded by the terms "solid cubic foot" and "stacked cubic foot," the first applied to large timber, the second to cord wood. The use of cord foot, a well-established term in this country, permits cubic foot to bear its legitimate meaning, and does away with all danger of confusion, while shortening the terms. The chief disadvantage of forest terms introduced into English from the German, as in the case in point, is the tendency to use a description instead of a name.

Perhaps the most useful subdivision of the present volume is that which deals with the Brandis method of determining the yield of the forest. It consists, briefly, in ascertaining, with more or less exactness, according to the circumstances of each case, the number of trees ready for the axe in any given forest, and the number of years which it will take to replace them. By dividing the first of these quantities by the second, the number of trees which may be cut annually with safety to the forest is ascertained in an extremely simple and sufficiently accurate manner. This method was used by Doctor (now Sir Dietrich) Brandis in Burma in 1856, and lay at the root of his exceedingly successful treatment of the Teak forests of Pegu. Its fitness for use in this country is not open to question, and its application in very many instances, as for example in the Adirondack Mountains of this state, is greatly to be desired.

New York. *Gifford Pinchot.*

Notes.

A correspondent of *The Gardeners' Chronicle* praises the display made by a dozen plants of Rosa setigera massed in the collection of Roses at Kew. He adds that the beauty of this species and its other valuable properties are not appreciated as they should be in England. He could have said with

truth that the Rose has hardly begun to be appreciated in its native country.

New parsnips, sweet-potatoes, okra, tomatoes, oyster-plant and egg-plants are now coming from New Jersey, cauliflower from the Catskill region of this state, and lettuce from Boston. English or Windsor beans sell for thirty cents a half-peck in the pods. Taragon costs seven cents for a small bunch, and nasturtiums seventy-five cents a quart.

The white-flowered Sweet Pea, Emily Henderson, was the earliest variety to bloom this year in a collection of more than fifty named sorts. There is a special strain of the Blanche Ferry, known as Extra Early, which blooms under most conditions slightly in advance of Emily Henderson, but the flowers are not white and the plant is not a persistent bloomer, so that about its only merit is that of extreme earliness.

Last year small consignments of California canned fruit were sent to Egypt and Ceylon by the way of Hong Kong, but the freight was too high to make the venture profitable. Large orders, however, have been received again for this fruit, which is highly prized by foreign tourists on the Nile and by rich English planters and army officers in Ceylon, and this year it will go direct to London by sailing vessel and thence to Alexandria and Colombo.

According to a dispatch to *The Tribune* of this city, ten million feet of pine and fir lumber are now being loaded on the Pacific coast, or are on their way to South Africa, for use in timbering the deep mines. This lumber is said to be much superior in length and strength to that from the Baltic region, which held a monopoly of the market until two years ago. The first shipments were made by sailing vessels, but several steamers are now regularly engaged in the trade.

The last number of *The Orchid Review* contains a portrait of a striking Cypripedium which is in all probability one of the natural hybrids which occur so rarely in this genus, only two others being recorded. The plant is called C. × Littleanum, and its foliage, broad dorsal sepal, nearly horizontal petals, and the shape of the lip indicate C. Lawrenceanum as one of its parents. Mr. Rolfe believes the other parent to have been C. Dayanum, and gives some ingenious reasons in support of his theory. At all events, it is to be hoped that a cross will be attempted between these two plants with a view to reproducing something like the present fine hybrid which bears a striking flower, measuring five and three-quarter inches from tip to tip of the petals, and having a dorsal sepal nearly two inches broad.

Skilled gardeners do not need to be reminded that this is the season for moving the bulbs of Lilium candidum or other perennial plants whose tops die after flowering and which then put forth new leaves to remain green all winter. It may be worth while to remind amateurs and beginners that the middle of August is the safest time to move the large and fleshy roots of many early-flowering perennials, like Pæonies, whose leaves do not die down. When transplanted at this season they will put forth enough new roots before the cold weather sets in to safely establish them and insure their flowering next year. Coniferous trees can also be safely moved in late August, after the new growth has hardened, but, unless there is some special reason for transplanting them now, it will be found safer on the whole to postpone the operation until early spring.

On the western edge of the Santa Clara Valley, near Los Gatos, California, is a factory in which red and white wine grapes are crushed and their juice turned into what is called "grape-food," that is, the juice is concentrated without fermentation. Fifty tons of grapes are treated every day, and the process of manufacture is described by a correspondent of *Harper's Weekly* as follows: "A small but constant stream of fresh juice flows into the upper end of a copper cylinder nineteen feet long and two feet in diameter and inclined at a slight angle. This cylinder revolves slowly in a hot-water jacket kept heated to 150 degrees, Fahrenheit. The juice forms a film on the interior of the cylinder, the water evaporates from it under the heat, the vapor is drawn away by rapidly revolving exhaust-fans, and the juice, which has been but sixty seconds in passing through the cylinder, trickles from its lower end in a warm syrupy stream reduced to one-quarter of its original bulk, but retaining all its original elements except the water."

A correspondent of *The Rural New Yorker*, whose Grape-vines were frozen back this spring, writes that he broke off all the new shoots and shortened in the wood. The result was that the vines treated in this way put out new shoots from adventitious buds which grew vigorously with clean bright leaves, showing canes of rich shining color, while canes left for comparison remained decrepit and crooked. Of course, a comparatively small amount of fruit set, and this was on shoots from the accessory buds at the nodes rather than from the adventitious ones. If the breaking out of the partly dormant accessory shoots had been deferred until after the frost, at least half a crop of fruit might have been obtained from the shoots of these duplicate buds, which seem to be provided for such a crisis as this in the life of the vines. But why should the breaking off the frozen shoots be such an advantage? Is it possible that the sap which is disorganized by freezing causes injury to the vine—a sort of blood-poisoning—when taken up into the circulation?

The best Elberta peaches from the south are now rivaled by large specimens of the juicy white-fleshed Stump the World and the showy Belle of Georgia, the choicest of which bring seventy-five cents to one dollar a dozen. Niagara and Delaware grapes, from the south, cost twenty cents a pound, and Black Hamburgs, from Newport hot-houses, $1.00 to $1.25; Black Muscats, from California, are already seen on the sidewalk fruit-stands, but they are small and uninviting. The first Tokays, from the same state, arrived during the latter part of last week. Choice plums, as Columbia, Egg, with Burbank, Kelsey and other Japanese varieties, and German prunes bring twenty-five cents a dozen in the fancy-fruit stores, and nectarines twenty-five to forty cents. Alexander apples, from California, cost forty cents a dozen. California seedling oranges are now among the best offerings of this fruit and sell at retail for sixty cents a dozen. Jenny Lind melons, from New Jersey, sell at three for twenty-five cents; large Anne Arundel cantaloupes, from Maryland, bring twenty cents each, and good specimens of the salmon-fleshed Christianas command twenty-five cents.

In the last number of *Meehans' Monthly* the editor tells an interesting story of being summoned to hold an inquest over a dead Sugar Maple-tree. It was supposed to have been destroyed by a leak in the city gas-main near its roots, but an examination convinced Mr. Meehan that the tree had died literally from sun-stroke. This Maple had been planted on the street about twenty-five years, and was some four feet in girth. The trunk, however, instead of being cylindrical, was shaped like a triangular prism, a peculiarity owing to the fact that on three sides of it the inner bark and wood had been killed, while the outer bark continued to cover up the injury, so that the only living wood was at the angles of the trunk. Practically, no more than one-third of the surface of the trunk was alive, and when the exceedingly warm weather of last month came the limited number of ducts were not sufficient to supply the moisture needed to meet the rapid transpiration from so large a surface of foliage, consequently the leaves wilted and the tree died. Mr. Meehan adds the counsel that whenever the trunk of a tree takes on this angular form it should be examined under the bark, and if the flatter portions are found dead, the bark and the decaying part of the wood should be wholly cut away and the denuded part painted to check the rotting. In time healthy wood may grow over such a scar and the life of the tree may thus be eventually saved.

Mr. W. K. Dexter, of St. Louis, has offered to present 250 acres of land at Hiawatha Lake to the people of Hennepin County, Minnesota, as a public park. The donor's purpose is to have the tract preserved in its natural state, and he therefore makes it a condition of the gift that no landscape-artist shall be allowed to touch it. Mr. Dexter evidently entertains the mistaken belief that landscape-art and formal gardening are identical terms, or, at least, that landscape-gardening means primarily the destruction of natural beauty to make room for something that is artificial. Perhaps, too, he has not considered the fact that the highest beauty of this wild tract will never be discovered until some real artist studies out a practical scheme for making its key-points inviting and accessible, nor that its original charm will surely disappear as it becomes frequented unless provision is made for restoring what is worn away and maintaining and developing its essential elements, a work which also requires the highest artistic taste and training. When Mr. Dexter gives himself thoroughly to a study of the problems of design and maintenance, which must be solved if his praiseworthy and public-spirited purpose is to be carried out to the best advantage, he may still feel inclined to resent any suggestions from the class of landscape-gardeners whose loftiest aim is to arrange flower-beds and plant purple Barberries and golden Elders on suburban lawns, but he will welcome the advice of some true artist in landscape, who will be certain to have a broad appreciation of Nature and a respect for her simplest as well as her noblest manifestations.